

10/539046
JC17 Rec'd PCT/PTO 15 JUN 2005

1. (Currently Amended) Microwave heating system comprising a plurality of microwave applicators-(28) for heating loads arranged in said applicators, a control means-(8), one microwave generator (16) to generate microwave energy having a controllable frequency and power level, and a microwave switch (26) arranged to connect said microwave generator to each of said applicators,

~~characterized in that wherein~~ each microwave applicator is dedicated a heating time slot in a time frame and said time frame comprises time slots for loads in applicators to be heated, wherein during microwave heating, microwave energy is applied to said microwave applicators in its respective time slot, in consecutive time frames and that said microwave switch is controlled by said control means to couple the microwave generator to a specified microwave applicator during the time slot dedicated to that specified microwave applicator.

2. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ said microwave energy is coupled to the respective microwave applicator by said microwave switch in accordance with time slot control signals from said control means.

3. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ within each time slot the microwave energy is optimised with regard to frequency and power level, by said control means, to the load to be heated by the applicator dedicated to that time slot.

4. (Currently Amended) Microwave heating system according to claim 3, ~~characterized in that wherein~~ the microwave system further comprises an attenuator means (18) and a power amplifier (20), wherein said attenuator means and power amplifier are controlled by said control means in order to achieve said optimised microwave energy.

5. Cancelled

6. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ a heating time slot has an adjustable time slot duration.

7. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ all time slots within a time frame have individually adjustable time slot durations.

8. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ all time slots within a time frame have the same time slot duration.

9. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ a heating time slot is divided into a sequence of time intervals comprising a ramp up time interval, a max output time interval and a ramp down time interval.

10. (Currently Amended) Microwave heating system according to claim 1, ~~characterized in that wherein~~ said microwave applicators are arranged in a microwave applicator matrix.

11. (Currently Amended) Microwave heating system according to any preceding claim claim 1, ~~characterized in that wherein~~ said load is a chemical reaction mixture.

12. (Currently Amended) Microwave heating arrangement ~~characterized in that it comprises comprising~~ a number of microwave heating systems according to any preceding claim 1.

13. (Currently Amended) Method in a microwave heating system according to any of claims 1-11 claim 1, ~~or in a microwave heating arrangement according to claim 12~~ for heating loads in microwave applicators by applying microwave energy to the applicators, ~~characterized in that wherein~~ the system is provided with heating time slots in a

time frame, where each time slot is dedicated to a specific microwave applicator with a load, the method comprises ~~the step of~~:

- i) applying microwave energy to each applicator in each applicator's respective time slot during consecutive time frames.

14. (Currently Amended) Method according to claim 13, ~~characterized in that~~ wherein the method comprises a further step performed prior to step i):

- ii) optimising the microwave energy to be applied to each microwave applicator within each applicator's respective time slot.

15. (Currently Amended) Method according to claim 14, ~~characterized in that~~ wherein step ii) is performed by changing the frequency of the applied microwave energy within time slot until minimum reflected energy is detected.

16. (Currently Amended) Method according to ~~any of claims 13-15~~ claim 13, ~~characterized in that~~ wherein load is chemical reaction mixture.

17. (Currently Amended) Use of a microwave heating system ~~or a microwave heating arrangement according to~~ claim any of claims 1-121, for performing chemical reactions and especially for organic synthesis reactions.

18. (Currently Amended) Use of a method according to ~~claim any of claims 13-16~~ claim 13, for performing chemical reactions and especially for organic synthesis reactions.